

CONVENTIONAL ROADWAY- A STREET OR HIGHWAY OTHER THAN A LOW-VOLUME ROAD, EXPRESSWAY, OR FREEWAY.

EXPRESSWAY- A DIVIDED HIGHWAY WITH PARTIAL CONTROL OF ACCESS.

FREEWAY- A DIVIDED HIGHWAY WITH FULL CONTROL OF ACCESS.

LOW-VOLUME ROAD- A FACILITY LYING OUTSIDE OF BUILT-UP AREAS OF CITIES, TOWNS, AND COMMUNITIES, AND IT SHALL HAVE A TRAFFIC VOLUME OF LESS THAN 400 AADT. IT SHALL NOT BE A FREEWAY, EXPRESSWAY, INTERCHANGE RAMP, FREEWAY SERVICE ROAD, OR A ROAD ON A DESIGNATED STATE HIGHWAY SYSTEM.

Source: 2003 MUTCD

Type of Taper	Taper Length (L)*
MERGING TAPER	AT LEAST L
SHIFTING TAPER	AT LEAST 0.5L
SHOULDER TAPER	AT LEAST 0.33L
ONE-LANE, TWO-WAY TRAFFIC TAPER	100 FT (30 m) MAXIMUM
DOWNSTREAM TAPER	100 FT (30 m) PER LANE

Source: Table 6C-3 2003 MUTCD

FORMULAS FOR DETERMINING TAPER LENGTHS

Speed Limit (S)	Taper Length (L) Feet
40 MPH OR LESS	$L = WS^2$
45 MPH OR MORE	$L = WS$

WHERE: L = TAPER LENGTH IN FEET (METERS)
W = WIDTH OF OFFSET IN FEET (METERS)
S = POSTED SPEED LIMIT, OR OFF-PEAK 85TH-PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICIPATED OPERATING SPEED IN MPH (KM/H)

Source: Table 6C-4 2003 MUTCD

Notes for Traffic Management

FIGURE Gen-3
NOTES ON WORK ZONE DISTANCES

SUGGESTED WORK ZONE WARNING SIGN SPACING

Road Type	A	B	C
LOCAL OR LOW VOLUME ROADWAYS*	350 (100)	350 (100)	350 (100)
MOST OTHER ROADWAYS*	500 (150)	500 (150)	500 (150)
FREEWAYS AND EXPRESSWAYS*	1,000 (300)	1,500 (450)	2,840 (860)

* SPEED CATEGORY TO BE DETERMINED BY HIGHWAY AGENCY

** DISTANCES ARE SHOWN IN FEET (METERS). THE COLUMN HEADINGS A, B, AND C ARE THE DIMENSIONS SHOWN IN THE DETAIL/ TYPICAL SETUP FIGURES. THE A DIMENSION IS THE DISTANCE FROM THE TRANSITION OR POINT OF RESTRICTION TO THE FIRST SIGN. THE B DIMENSION IS THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS. THE C DIMENSION IS THE DISTANCE BETWEEN THE SECOND AND THIRD SIGNS. (THE "THIRD" SIGN IS THE FIRST ONE TYPICALLY ENCOUNTERED BY A DRIVER APPROACHING A TEMPORARY TRAFFIC CONTROL (TTC) ZONE.)

THE "THIRD" SIGN ABOVE IS TYPICALLY REFERRED TO AS AN "ADVANCE WARNING" SIGN ON THE TWP SETUPS. IT IS THE ONE WHICH MAY OFTEN HAVE THE "STANDARD RED OR RED-ORANGE FLASH (18 in. x 18 in.)" MOUNTED ON IT. THESE ADVANCE WARNING SIGNS ARE LOCATED AT THE PROJECT LIMITS ON ALL APPROACHES (i.e., THE W20-1 SERIES (ROAD WORK XX (T) SIGNS), AND USUALLY REMAIN FOR THE DURATION OF THE PROJECT. ADDITIONAL SIGNS (i.e., "RIGHT LANE CLOSED 1 MILE" AND "LEFT LANE CLOSED 1 MILE") HAVE BEEN SHOWN IN SOME FIGURES AS EXAMPLES OF REINFORCEMENT SIGN PLACEMENT BUT ARE USED IN RARE OCCASIONS.

THE FIRST AND SECOND WARNING SIGNS ABOVE ARE REFERRED TO AS THE OPERATIONAL (DAY-TO-DAY) WORK ZONE SIGNS AND MAY BE MOVED DEPENDING ON WHERE THE SPECIFIC ROADWAY WORK FOR THAT DAY IS LOCATED.

R2-10a SIGNS SHALL BE PLACED BETWEEN THE SECOND AND THIRD SIGNS AS DESCRIBED ABOVE.

R2-10a AND W20-1 SERIES SIGNS ARE TO BE INCLUDED ON ALL DETAILS/TYPICAL SETUPS.

Based on: Table 6C-1 2003 MUTCD

STOPPING SIGHT DISTANCE AS A FUNCTION OF SPEED

SPEED* (km/h)	DISTANCE (m)
30	35
40	50
50	65
60	85
70	105
80	130
90	160
100	195
110	220
120	250

SPEED* (mph)	DISTANCE (ft)
20	115
25	155
30	200
35	220
40	305
45	360
50	425
55	495
60	570
65	645
70	730
75	820

*POSTED SPEED, OFF-PEAK 85TH-PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICIPATED OPERATING SPEED

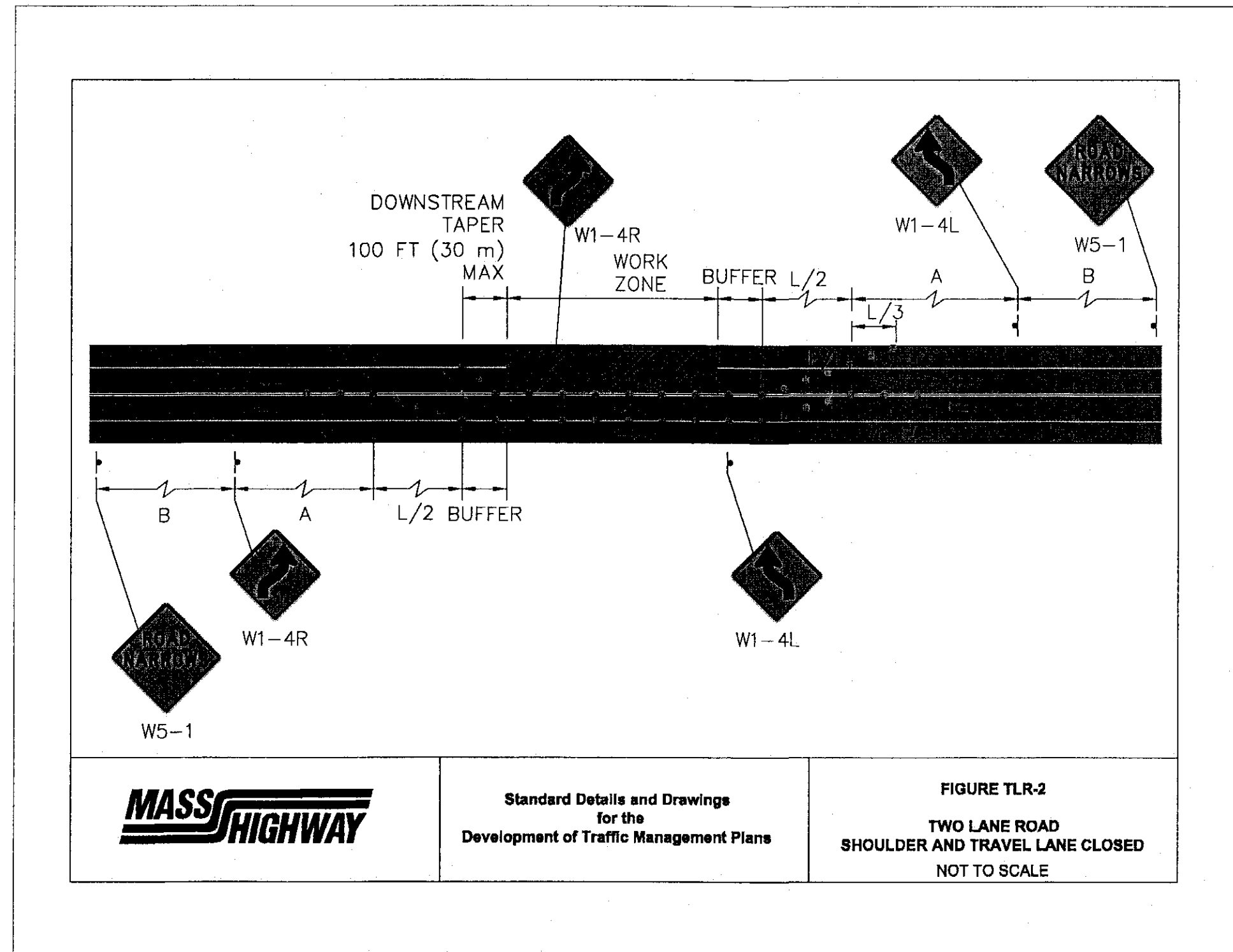
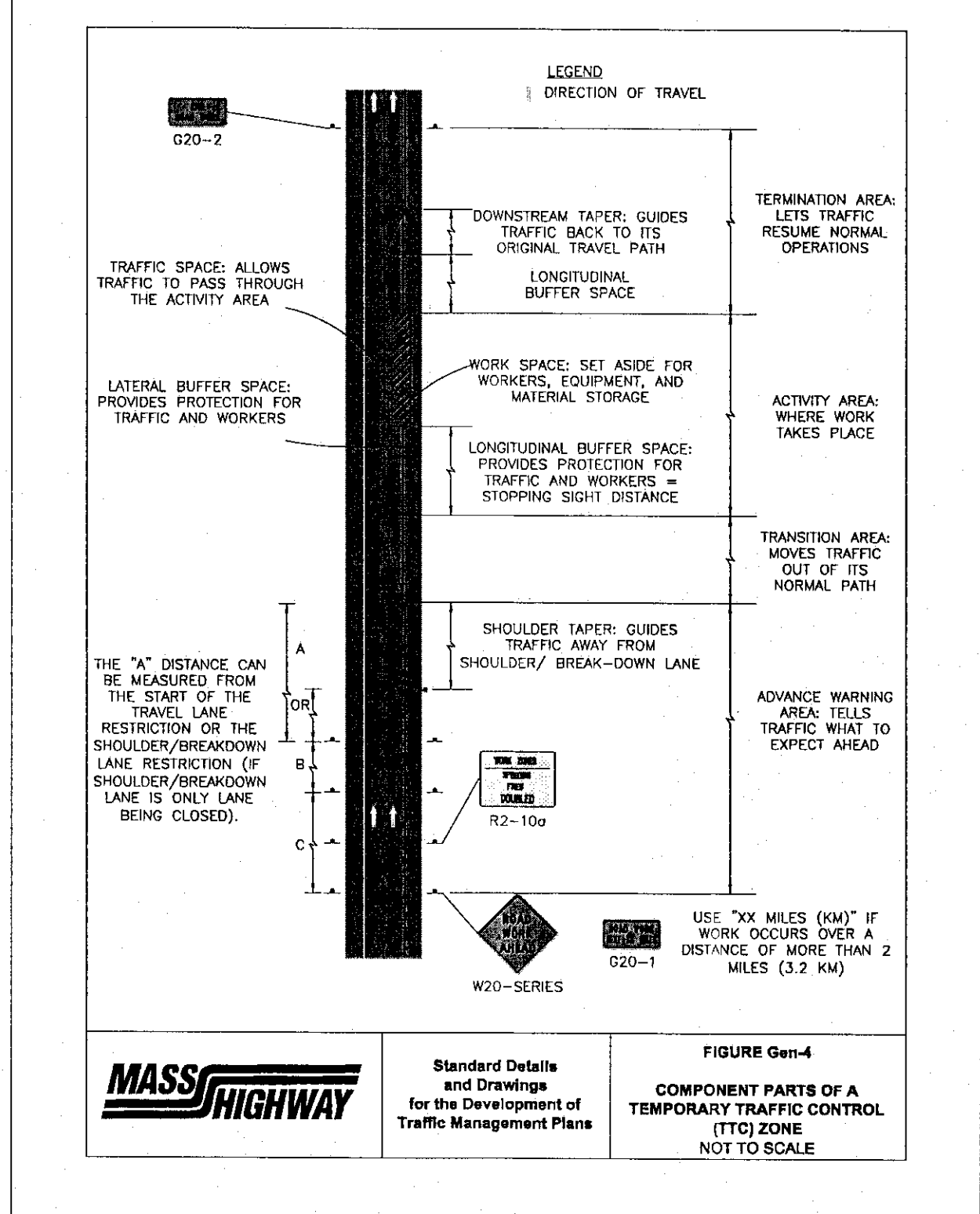
THESE VALUES MAY BE USED TO DETERMINE THE LENGTH OF LONGITUDINAL BUFFER SPACES.

THE DISTANCES IN THE ABOVE CHART REPRESENT THE MINIMAL VALUES FOR BUFFER SPACING.

Source: Table 6C-2 2003 MUTCD

Notes for Traffic Management

FIGURE Gen-2
NOTES ON WORK ZONE DISTANCES



NOTES

- 1) CONTRACTOR SHALL PROVIDE POLICE DETAILS DURING THE WORK IN ROUTE-122.
- 2) ALTHOUGH THE EXTENT OF THE WORK ZONE IS SHOWN ABOVE, THE CONTRACTOR SHALL MINIMIZE THE LENGTH OF SHOULDER CLOSING. DRUMS SHALL BE PLACED AROUND THE WORK AREA AND PROVIDE A 80'+/- LONG TAPER FROM ROAD SHOULDER TO WORK ZONE.
- 3) THE TRENCH SHALL BE PLATED AT THE END OF THE DAY AND SECURED IN PLACE. THE ROAD SHALL BE OPENED FOR NORMAL TRAFFIC FLOW EXCEPT WITH LIT DRUMS PROTECTING THE PILE/TRENCH AREA.
- 4) REFLECTORIZED DRUMS SHALL BE ORANGE & WHITE WITH LIGHTS, CONFORMING TO MASS HIGHWAYS TR.7.1
- 5) TEMPORARY TRAFFIC CONTROL DEVICES AND CONSTRUCTION SIGNAGE SHALL BE IN PLACE PRIOR TO THE START OF ANY WORK.
- 6) THE CONTRACTOR SHALL NOTIFY EACH ABUTTER AT LEAST 24 HOURS IN ADVANCE OF ANY WORK THAT WILL REQUIRE THE TEMPORARY CLOSURE OF THEIR ACCESS.
- 7) ALL SIGNS AND TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MUTCD AND THE MASS HIGHWAYS/ DOT STANDARDS.
- 8) DRUMS SHALL BE SET SUCH THAT A 2' MINIMUM EXISTS BETWEEN THE DRUM AND THE TRENCH AND THAT A MINIMUM OF 11' FEET IS PROVIDED FOR TRAVEL IN EACH LANE.

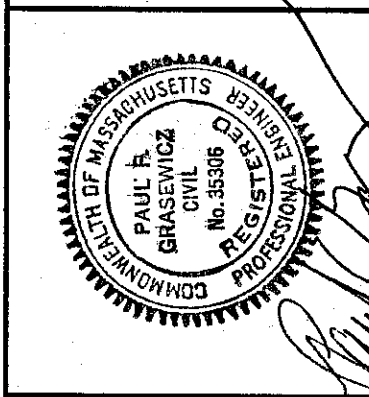
Approval By
Town of Grafton
Zoning Board of Appeals
Date 9/13/12

(Ref. Comprehensive Permit
WDRD Bk.46010 pgs.1-37)

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PROVIDENCE ROAD COMMONS; 195 PROVIDENCE ROAD
40B SITE PLAN- TRAFFIC MANAGEMENT PLAN
PREPARED FOR: PROVIDENCE ROAD COMMONS, LLC
43 CORTLAND WAY; GRAFTON, MASSACHUSETTS

Scale: AS NOTED
Drawn By: PFG
Date: JANUARY 10, 2012
Project: MARCH 20, 2012
APRIL 12, 2012



DRAWING SET
SHEET 12 OF 12

REV 9/1/12 For ZBA